REMARKS

Claims 1-18 are pending after entry of this paper. Claims 1-13 have been rejected. Claims 14-18 have been withdrawn. Applicants reserve the right to pursue withdrawn claims in a divisional application. Applicants note that a petition for withdrawal of the restriction requirement and rejoinder of claims 14-18, filed November 7, 2008, is currently awaiting a decision.

Support for the amendment to claim 1 can be found throughout the application as filed, for example, anode 4 in Figure 1.

No new matter has been introduced by these amendments. Reconsideration and withdrawal of the pending rejections in view of the above amendments and below remarks are respectfully requested.

Response to Rejections under 35 U.S.C. §103

Claims 1-6 and 9-13 have been rejected under 35 U.S.C. §103(a) for allegedly being unpatentable over U.S. Patent No. 5,685,892 to Ikoma et al. ("the '892 patent") for the same reasons as set forth in the previous Office Action.

The Examiner contends that in regards to the prior amendments to claim 1, "bending position and bending degrees are recognized as result-effective variables in term of feeding result, which is evidenced by US'892." (*See 08/07/2008 Office Action*, page 3.) The Examiner states that the '892 patent further teaches that upon entering the melt, the "leading end tends to float in the melt due to the increase in the resistance exerted thereon and changes its posture gradually from vertical one to a horizontal one." (*Id.* at 4.) The Examiner concludes that

based off of these teachings, optimizing the bending position and bending degrees to prevent an anode from impinging the furnace bottom would have been obvious to one of ordinary skill in the art. (*Id.*) The Examiner further contends that the prior amendments to claim 1 are process limitations in an apparatus application.

Applicants respectfully disagree, and address the rejection as it pertains to independent claim 1. Applicants reserve the right to address each of the rejections to the dependent claims separately.

The '892 patent discloses an anode that is bent only at the leading end of the anode. (*See* col. 8, lines 13-15.) In fact, the only bending element taught by the '892 patent is bending press **92** which can bend the anode only at the leading end. (*See* col. 8, lines 45-64; Fig. 7.) The '892 patent explicitly states that bending press **92** includes holding members **95** and **96** with vertical surfaces **95***a* and **96***a*, an inclined surface **95***b*, and a bending member **101** with inclined surface **101***a*. (*Id.*) The '892 patent clearly teaches a bending press that bends only a relatively small portion of the anode at a distinct angle. (*See* col. 8, lines 26-33.) This bent leading end, as the Examiner acknowledges, "tends to float in the melt due to the increase in the resistance exerted thereon and changes its posture gradually from vertical one to a horizontal one." (*08/07/2008 Office Action*, page 4; *See also* '892 patent, col. 8, lines 18-23; Fig. 9.) Because the leading end has a tendency to float, it is evident that the bent leading end of the anode acts as a "brake" when the anode enters the melt and also acts as a "buoy" when entering the melt. Adjusting the bending length and bending angle determines the "amount of braking" the anode does once the anode enters the melt as well as affect the "buoying" of the anode once the anode is inside the melt.

It is respectfully submitted that the '892 patent does not teach or suggest an anode that "is essentially completely bent on both sides with respect to the center of the anode" and "having a radius of curvature of 1,000 – 3,000 millimeters" as required in instant claim 1. The '892 patent discloses bending press **92** creating a small, bent length of only the leading end of the anode at an angle. According to the '892 patent, it is this small, bent length of only the leading end of the anode that leads to the aforementioned "braking" and "buoying" of the anode once the anode enters the melt. In fact, the '892 patent *teaches away* from an anode that "is essentially completely bent on both sides with respect to the center of the anode," as required in claim 1. The '892 patent explicitly states that the inventors experimented with various bending angles and bending lengths. (*See* col. 8, lines 29-33.) After all of the inventors' tests, they concluded that a bending length is preferably within a relatively small portion of the leading end of the anode with an acute bending angle, and not essentially completely bent having a radius of curvature of 1,000 – 3,000 millimeters, as required by claim 1. (*Id.*) Indeed, the '892 patent explicitly place an upper limit on the bending length that cannot possibly include an anode that "is essentially completely bent on both sides with respect to the center of the anode," as recited in claim 1. Furthermore, according to the '892 patent, surpassing the upper limit of 200 mm would not produce the desired "braking" and "buoying" results to make the anode "float." Thus, it is evident that the '892 patent rejects and teaches away from an anode that "is essentially completely bent on both sides with respect to the center of the anode," as recited in claim 1.

Second, the Examiner contends that "bending position and bending degrees are recognized as result-effective variables in term of feeding result, which is evidenced by US'892." (*See 08/07/2008 Office Action*, page 3.) Applicants respectfully submit that the '892 patent does not evidence bending position and bending degrees as result-effective variables in

the context of instant claim 1. As the Examiner is well aware, a result-effective variable is a "variable which achieves a recognized result." (*See* MPEP 2144.05(II)(B)). As discussed above, the '892 patent clearly indicates that the bending angle and the bending position of a small portion of the leading end of the anode are critical to the "braking" and "buoying" of the anode once the anode enters the melt. Thus, based on the Examiner's assertion, if bending angle and bending position are result-effective variables, then the "recognized result" is the "braking" and "buoying" of the anode once the anode enters the melt. In contrast, instant claim 1 recites that the anode "meets the surface of the melt…in an essentially horizontal position." Accordingly, the "braking" or "buoying" result taught by the '892 patent is irrelevant in the context of claim 1. Because the "recognized results" – braking and buoying – from bending position and bending angle, as evidenced in the '892 patent, are inapplicable and irrelevant to applicants' invention, it is, therefore, respectfully submitted that bending position and bending degrees cannot be result-effective variables in the context of instant claim 1, as evidenced by the '892 patent.

Thus, for the foregoing reasons, applicants respectfully submit that instant claim 1 is not obvious over the art of record. Reconsideration and withdrawal of the rejections of claims 1-6 and 9-13 under 35 U.S.C. §103(a) are respectfully requested.

Dependent claims 7 and 8 have been rejected under 35 U.S.C. §103(a) for allegedly being obvious over the '892 patent in view of U.S. Patent No. 4,578,977 ("the '977 patent") to Murakami et al. For the same reasons why independent claim 1 is neither anticipated by nor obvious over the cited art as described above, dependent claims 7 and 8 are also neither anticipated nor obvious. Applicants assert that the deficiencies of the '892 patent are not

overcome by the '977 patent. Thus, applicants respectfully request reconsideration and withdrawal of the rejections of claims 7 and 8 under 35 U.S.C. §103(a).

Dependent Claims

Applicants have not independently addressed all of the rejections of the dependent claims. The applicants submit that for at least similar reasons as to why independent claim 1 from which all of the dependent claims 2-13 depend are believed allowable as discussed above, the dependent claims are also allowable. Applicants, however, reserve the right to address any individual rejections of the dependent claims and present independent bases for allowance for the dependent claims should such be necessary or appropriate.

CONCLUSION

Based on the foregoing amendments and remarks, the applicants respectfully request reconsideration and withdrawal of the pending rejections and allowance of this application. The applicants respectfully submit that the instant application is in condition for allowance. Entry of the amendment and an action passing this case to issue is therefore respectfully requested. In the event that a telephone conference would facilitate examination of this application in any way, the Examiner is invited to contact the undersigned at the number provided. Favorable action by the Examiner is earnestly solicited.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. **13-4500**, Order No. 4819-4735.

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. **13-4500**, Order No. 4819-4735.

Respectfully submitted,
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